

present discovery is of great interest as extending still further the ascertained geographical range of the genus during Cretaceous times.

THE very extensive alterations in botanical nomenclature proposed in Kuntze's "Revisio Generum" has prompted a proposal, emanating from the four eminent German botanists, Ascherson, Engler, Schumann, and Urban, with the assent of a number of their colleagues, for a revision of De Candolle's "Lois de Nomenclature Botanique." The essential points of the propositions are that the starting-point for the priority of genera, as well as of species, shall be the year 1753, the date of the publication of Linnæus's "Species Plantarum"; that "nomina nuda" and "semi-nuda," *i.e.* names without a diagnosis, or with only a very imperfect diagnosis, shall be rejected, as well as figures without a diagnosis; that no generic name shall be rejected because of its similarity to another generic name, even if it differ only in the last syllable, but that, if the difference be in spelling only, the later name must be rejected; that the names of certain large and universally known genera be retained, even though they would have to be rejected by the strict rules of priority. English botanists are invited to signify their assent or otherwise to these propositions.

AT the meeting of the Linnean Society of New South Wales, on May 25, Mr. Pedley exhibited a very fine and perfect saw, about 5 feet long, of the saw-fish *Pristis zyron*, Bleeker. The fish, without the saw, was about 19 feet long, and was captured in a net at Evans River, N.S.W. The number of pairs of rostral teeth for this species is usually given as from 26-32; the specimen exhibited had only 25 pairs, all in place. At the same meeting, Mr. Hedley exhibited, on behalf of Mr. Rainbow, a spider of the family *Epeiridae*. This rare and remarkable insect furnishes an addition to the fauna of Australia, and it is supposed that a new genus may be required for its reception.

MR. W. A. ROGERS, writing to *Science* from Colby University, Waterville, Me., confirms testimony given by Mr. Kunz as to the fact that the hardness of diamonds is not perceptibly reduced by cutting and polishing. In the earlier years of Mr. Rogers's experience in ruling upon glass he was accustomed to select a gem with a smoothly-glazed surface, and, the stone being split in a cleavage plane inclined at a rather sharp angle to the natural face selected, this split face was ground and polished. In this way he was able to obtain at several points short knife-edges, which gave superb results in ruling. It was soon found, however, that after ruling several thousand rather heavy lines the diamond was liable to lose its sharp cutting-edge, and this experience became so frequent that he was compelled to resort to the method now employed, that of grinding and polishing both faces to a knife-edge. He has one ruling diamond prepared in this way, which has been in constant use for four years, and its capacity for good work has not yet been reduced in the slightest degree. A diamond prepared by Mr. Max Levy, of Philadelphia, has given even better results, and so far it shows no evidence of wear.

THE *Bulletin de la Société des Naturalistes de Moscou* (1891, Nos. 2 and 3) contains a very interesting paper, in French, by Prof. A. Pavloff and Mr. G. W. Lamplugh, on the Speeton clays and their equivalents. These clays, which have long occupied the attention of geologists, have acquired of late a new interest owing to close resemblance between their fauna and that of similar deposits in other countries, even as far distant as Russia. The work consists of three parts: the first part, devoted to the description of the Speeton clays and their Lincolnshire equivalents, has been written by Mr. Lamplugh, and will, no doubt, be published in

English as well. The second part, by Prof. Pavloff, is devoted to the description of the Cephalopods found in these clays, the Speeton forms being compared with those of other countries, and especially those of Russia. A table giving the succession of the subdivisions of the Jurassic and Cretaceous deposits, with their leading fossils, in the two Russian localities where they are best represented (Moscow and the lower Volga), is given by the author, and it differs from a previous table by the introduction of a new series, named Petchorian, which, although it has the thickness of but a few inches, has nevertheless a very peculiar fauna, of a well-determined character. However, for the present it is not possible to classify it either under the Jurassic or the Cretaceous formation. The table is followed by a detailed description of twenty-five species of Belemnites, of which eight are new, the chief interest of this description being in the attempt to give in each case the genealogical relations of closely allied species, and in a special chapter devoted to the geological history of Belemnites generally and the descent of various species supposed to have originated from the *Belemnites tripartitus* of the middle Jurassic and Lias epoch. In a subsequent paper, which will contain the third part of the work—namely, a comparison of the Speeton clays with those of other localities—the author proposes to describe in the same way the Speeton Ammonites, which are even more interesting than the Belemnites; and he hopes to be able then to give a more positive answer as to where the separation must be taken between the Jurassic and the Cretaceous deposits of the Speeton clays and analogous deposits.

MR. MATTHIAS DUNN writes to us from Mevagissey, Cornwall, that the fishing-boat *Mispah* landed a large shark there lately which had got entangled in her mackerel nets. Its length was 11 feet 2 inches, and in its stomach were two considerable-sized congers. The creature proved to be Couch's Ponbeagle Shark, or *Lamna cornubica* of Cuvier.

THE additions to the Zoological Society's Gardens during the past week include a Tiger (*Felis tigris* ♂ jr.) from Amoy, China, presented by Mr. Robert Bruce; two Mountain Ka-kas (*Nestor notabilis*) from New Zealand, presented by the Earl of Onslow, K.C.M.G.; a Chilian Sea Eagle (*Geranoetus melanoleucus*) from Chili, presented by Mr. Edward Jewell; a Broad-fronted Crocodile (*Crocodilus frontatus*) from West Africa, presented by Mr. G. T. Carter; a Common Boa (*Boa constrictor*) from South America, presented by Mr. A. E. Oakes; a Macaque Monkey (*Macacus cynomolgus* ♀) from India; a Kinkajou (*Cercoleptes candidivolulus*) from Demerara, deposited; a Hippopotamus (*Hippopotamus amphibius* ♂) bred in Antwerp; sixteen Common Boas (*Boa constrictor*) from South America, purchased; an Indian Muntjac (*Cervulus muntjac* ♂) born in the Gardens.

OUR ASTRONOMICAL COLUMN.

LUNAR PHOTOGRAPHY.—Dr. L. Weinek, of the Prague Observatory, has been the recipient of several photographs of the moon from Prof. Holden for the purpose of making enlargements from them. The photographs were obtained with the large equatorial of the Observatory at Mount Hamilton, and an illustration of one of the enlargements is given in *L'Astronomie* for July. The photograph is of the large crater Petavius, 153 kilometres in length. With M. Weinek's apparatus the photograph was enlarged twenty times, giving a lunar image of nearly three metres in diameter. At first sight the photograph looks as if the enlargement had been carried a little too far, but when held at arm's length the effect is very fine. The most striking features noticeable are the narrow river-like lines, which are numerous and very alike in appearance. Whether these are really photographic or not of course we cannot say, as we have not seen the original negatives, but they seem to be rather too

distinct and natural to be taken for any impression other than photographic. What these rivers, if we may use such a term, are composed of is at present a subject of mere conjecture, but the day is not far off when a very careful systematic study will have to be undertaken to settle some of the questions that have been recently raised in respect to our satellite's surface.

COMET SWIFT (1892 MARCH 6).—The ephemeris of this comet for the ensuing week, taken from the *Edinburgh Circular*, No. 28, is as follows:—

		<i>Berlin Midnight.</i>				
1892.	R.A.	Decl.	log Δ .	log r .	Br.	
	h. m. s.					
July 14	0 58 26	+49 20'8				
15	59 6	49 31'4				
16	0 59 44	49 41'8	0'2459	0'2776	0'15	
17	1 0 19	49 51'9				
18	0 52	50 1'8				
19	1 22	50 11'5				
20	1 49	50 21'0	0'2488	0'2884	0'14	

Brightness at time of discovery taken as unity. The comet lies in the southern extremity of the constellation of Cassiopeia.

OPPOSITION OF MARS.—All observatories which have the necessary equipment are especially invited by the United States Naval Observatory to join with them in making observations of the coming opposition of Mars. Observations should commence on June 20 to September 23, this period being divided into three parts, the comparison stars for the first section being O.A.S. 20970, η Capricorni, 27 Capricorni, ϕ Capricorni, Lacaille 8851, 41 Capricorni, D.M. -20°, 6923, Lalande 42700. It may be mentioned that observations made in accordance with the special circular which the U.S. Observatory has issued will be reduced by them.

SUN-SPOTS.—*Himmel und Erde* for July contains two very good photographs of the sun at the time of the great spot in the month of February. They were photographed by Dr. Lohse, at the Astrophysical Observatory at Potsdam. One was taken on February 13 at roh., and shows the large group near central transit with a smaller group on the limb; while in the other, the large group is nearer the western limb. A small disc represents the relative size of the earth for comparison.

REMARKABLE PROMINENCES.—The sun's atmosphere this year has been subject to many violent disturbances, indicated to us by the presence of spots, prominences, &c. The spots, with special reference to the February group, have already received much attention, but not so with the prominences. From a set of forty observations of the latter made between March 1 and May 31, 1892, by M. Trouvelot, 23 of these, as he says, belonged to the most interesting type, *i.e.*, eruptive. On April 6, 1892, there appeared an arched like prominence on the sun's limb, extending through 12°, the length of its base being 144,932 and its height 92,664 kilometres; to give an idea of the size of this arch, it may be stated that as many as 22 globes the size of our earth might have simultaneously passed under it. At roh. 54m., on the 8th of the same month, a huge column of light, in shape rather like a candle flame, rose to a height of 115,830, extending, in a little over half-an-hour, to 169,884 kilometres. A prominence of far greater length, occupying 34° of the solar limb, but of much less height than those mentioned above, was visible on April 15. Its base covered 410,632 kilometres, thus exceeding ten times the circumference of our earth.

GEOGRAPHICAL NOTES.

AT the last meeting of the Council of the Royal Geographical Society for the present session, it was unanimously agreed to admit women as Fellows on the same terms as men. There is nothing in the society's charter to limit the membership to men, and the proposal of admitting ladies has been made several times, and on the last occasion—two years ago—was nearly carried. As there will not be another meeting of the society until the opening of next session, the election of the first lady F.R.G.S. cannot take place until November.

THE Annual Congress of the French Geographical Societies meets this year at Lille in the first week of August, for the consideration of questions relating mainly to France and its colonies. The French Association for the Advancement of Science will

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hold its meeting at Pau, as we have already announced, in the third week of September. Its Geographical Section will be presided over by M. E. Anthoine, head of the French Map Department and of Graphic Statistics under the Minister of the Interior. In all departments of geography there is a remarkable revival of interest among Frenchmen at the present time, although the narrow or national aspect of the subject predominates over the wider or cosmopolitan.

A CURIOUS account of the piratical Tugere tribe of New Guinea has been published in most of the continental geographical journals on the authority of "an English medical missionary, Dr. Montague," who was picked up by a Dutch war-vessel near the boundary of Dutch and British New Guinea. This gentleman told a remarkable narrative of his capture and imprisonment by the Tugere, but as no English missionary of his name is known to be in New Guinea, nor has any mission station been recently raided by the Tugere, there is no doubt that some mistake has been made. It is impossible that so serious an incident as the imprisonment of an English missionary could be unknown in this country, and unless strong evidence were forthcoming, it is difficult to believe that such a thoroughly piratical people as the Tugere could show the diligence in agriculture and the relatively high civilization with which the story credits them.

M. E. A. MARTEL continues his researches into the subterranean geography of France. In March last he descended the "unfathomable" Creux-Percé on the plateau of Langres, proving it to be only 180 feet deep. It is a hollow in Jurassic limestone, and, although open to daylight, forms a natural ice-house, having a temperature of 28°F. when the external air was at 58°. In June he examined the still more remarkable Creux de Souci in the department of the Puy de Dôme. It proved to be a rounded cavity in recent basalt, 115 feet deep, having the appearance of being formed by a great gas bubble. A stagnant pool occupied the bottom of the pit, and above it the air was so much impregnated with carbonic acid that a candle would not burn. In this instance also the temperature fell as the distance from the surface increased, that of the external air being 51° of the air at the bottom of the shaft 34°, and the water itself 34° 3. The Paris Society of Commercial Geography recently awarded a medal to M. Martel on account of the practical value of his researches in leading to the regulation of the underground drainage of Greece.

EASTER ISLAND.

THE prehistoric remains of Easter Island make it for archaeologists one of the most interesting islands in the Pacific. They will therefore read with interest an elaborate paper in the Report of the U.S. National Museum for 1888-89, which has just been issued. The paper is entitled "Te Pito Te Henua, or Easter Island," and is by William J. Thomson, Paymaster, U.S. Navy. It records the results of researches made by Mr. Thomson during a visit paid to Easter Island by the American vessel, the *Mohican*, towards the end of 1886. The *Mohican* anchored in the Bay of Hanga Roa on the morning of December 18, 1886, and remained till the evening of the last day of the year, when she sailed for Valparaiso. Mr. Thomson and some of his comrades, interested in the relics of a past phase of life in the island, made the most of the short time at their disposal, and his essay will certainly rank among the most important contributions which have been made to our knowledge of the subject with which it deals.

He begins with a general account of Easter Island, and in this part of his work has succeeded in presenting compactly and clearly much valuable information. Of the geological features of the island he says that they are "replete with interest." The formation is purely volcanic, and embraces every variety pertaining to that structure. The tufaceous lavas form the most prominent element in the physiognomy of the island. To them, with the action of the trade-winds and heavy rains, is due the fact that Easter Island is surrounded by precipitous cliffs, rising in some cases to a thousand feet in height. The formation is extremely friable, and by the action of the elements enormous masses are continually disappearing beneath the waves that beat on the unprotected shore. Both on the coast-line and in the interior there are many natural caves. Some of these are of undoubted antiquity, and bear evidence of having been used by early inhabitants as dwellings and burial-places. It is reported